

A new genus of pinnotherid crab from the Indian Ocean (Crustacea: Decapoda: Brachyura)

Raymond B. Manning and Bella Galil

(RBM) Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560-0163, U.S.A.; (BG) Israel Oceanographic and Limnological Research Ltd., P.O. Box 8030, Haifa 31080, Israel

Abstract.—*Abyssotheres*, new genus, is recognized for *Pinnotheres abyssicola* Alcock & Anderson, 1899, known from a single female taken in a bivalve shell from a depth of 787 m off Travancore, India. In this new genus the dactyli of walking legs 1 and 2 are longer than those of walking legs 3 and 4. This is the eighth genus of pinnotherids that shares a two-segmented palp on the third maxilliped.

Alcock & Anderson (1899) described *Pinnotheres abyssicola* from a single ovigerous female found in a lamellibranch taken off Travancore, India at a depth of 430 fm (787 m). It is known only from the holotype kept in the Zoological Survey of India and remains the deepest recorded occurrence of a pinnotherid crab.

One of us (BG) recently visited the Zoological Survey of India (formerly the Indian Museum) and examined the holotype of *P. abyssicola*. It is in very poor condition, possibly having dried out. However, she was able to examine the third maxilliped (Fig. 1a) and determined that the palp comprises only two segments. Campos (1996) reviewed the pinnotherid genera with a two-segmented palp on the third maxilliped and reported that the two-segmented palp was found only on members of six genera. Manning (1993) added a seventh, *Epulotheres*. A combination of characters distinguishes *P. abyssicola* from all pinnotherid genera with a two-segmented palp. We recognize a new genus here for it.

We use the following abbreviations in the account below: fm, fathom(s); m, meter(s); MXP3, third maxilliped; WL, walking leg(s).

Abyssotheres, new genus

Diagnosis.—Size medium, carapace length and width described as less than 10

mm in adult. Carapace length and width subequal, front prominent, transverse, projecting anteriorly beyond eyes. Eyes visible in dorsal view. MXP3 with ischium and merus indistinguishably fused, arched, inner margin projecting at about distal third. Palp 2-segmented (Fig. 1a), terminal segment spatulate, shorter than preceding segment. Chela with dactylus slightly less than half of propodus. Walking legs (Fig. 1b) slender, equal right and left; WL1-2 with dactyli longer than dactyli of WL3-4. Abdomen unknown.

Male.—Unknown.

Type species.—*Pinnotheres abyssicola* Alcock & Anderson, 1899, by present designation and monotypy.

Etymology.—From the Latin *abyss*, depth, and the ending *theres*.

Host.—A large bivalve, *Acesta indica* (Smith) (originally described in *Lima*) (Alcock & Anderson 1899).

Distribution.—Known only from off the coast of Travancore, India, at a depth of 787 m. This is the deepest record for a pinnotherid.

Remarks.—Alcock & Anderson's original account, based on an ovigerous female 8 mm wide, is: "Carapace as long as broad, circular, smooth; front rather prominent, about one-fifth the greatest breadth of the

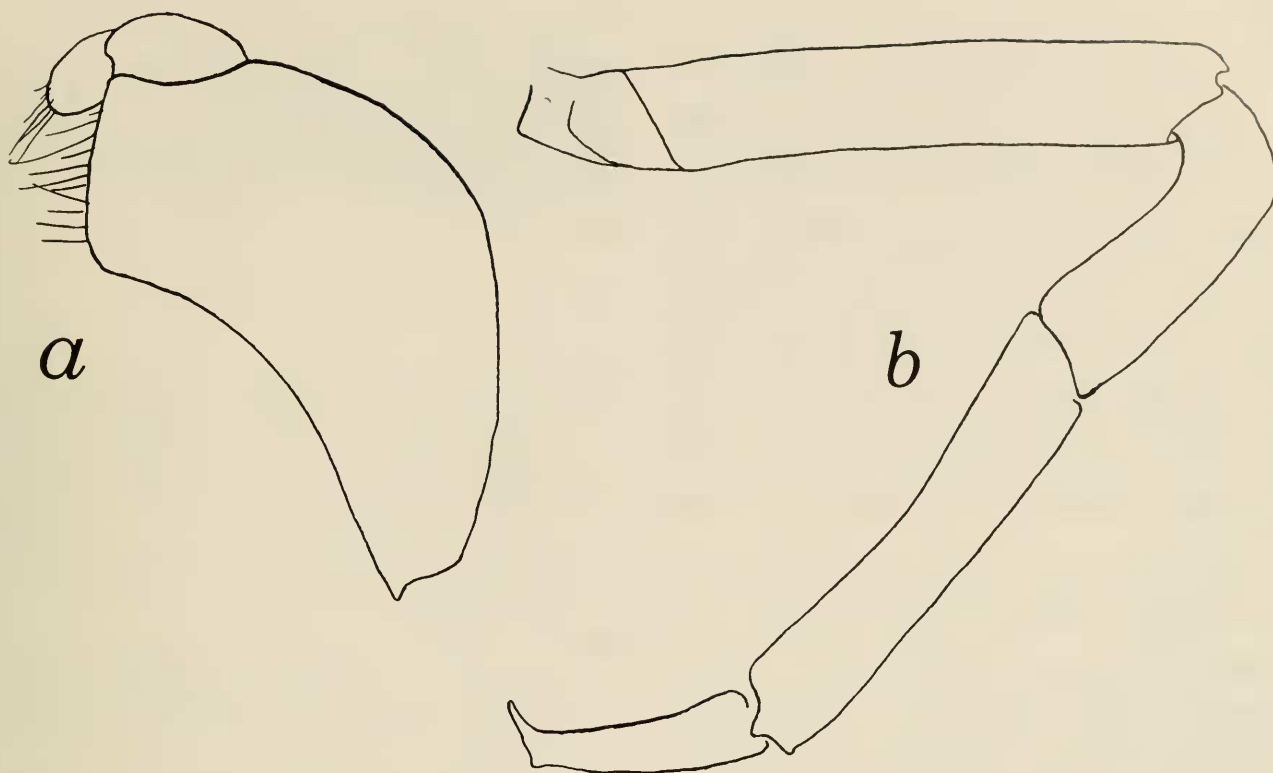


Fig. 1. *Abyssotheres abyssicola* (Alcock & Anderson, 1899). Ovigerous female holotype, carapace length 8 mm: a, MXP3; b, WL.

carapace. The whole of the eyes and eye-stalks and almost the whole of the orbit are visible in dorsal view. The eyes are well developed, but very pale. The dactylus of the external maxillipeds is styliform and is inserted at the end of the preceding joint. The lower border of the thumb is fringed with fine hairs. The legs are slender; the second and third pair are both about $1\frac{1}{2}$ times as long as the carapace, and have the dactylus slightly longer than it is in the other two pairs" (Alcock & Anderson 1899: 14).

This account provides few diagnostic features. First, the carapace is round, as broad as long, and the front is fairly prominent.

Second, the terminal segment of the MXP3 palp is articulated terminally on the subdistal segment. Among those Pinnotherinae with a two-segmented palp, the dactylus of the palp is articulated terminally in members of *Orthotheres* Sakai, 1969 (see Campos 1989, Manning 1993) and in three species described by Bürger (1895), *Pinnotheres glaber*, *P. impressus*, and *P. lae-*

vis, all presumably shore species known from the Pacific Ocean. In Bürger's species the dactyli of the walking legs are equally long.

A third distinguishing character of *A. abyssicola* is that the dactyli of WL1-2 are longer than those of WL3-4. This may be an unique feature within the Pinnotheridae.

A fourth characteristic feature of *A. abyssicola* is the arched MXP3, a feature shared with the unrelated *Limotheres nasutus* Holthuis, 1975, from the Caribbean. It also is a commensal of a species of *Lima*, but occurs in shallow water. *Limotheres* has a three-segmented mandibular palp, and differs from *Abyssotheres* in numerous other features.

Campos (1996) studied six genera of pinnotherids that have a two-segmented palp on the MXP3: *Calyptraeotheres* Campos, 1990; *Dissodactylus* Smith, 1870; *Gemmotheres* Campos, 1996; *Ostracotheres* H. Milne Edwards, 1853; *Tunicotheres* Campos, 1996; and *Xanthasia* White, 1846. Members of *Abyssotheres* can be distinguished from members of these genera as

follows: the carapace lacks the sharp lateral margins and the dorsal sulci characteristic of *Calyptraeotheres*; the apices of WL dactyli are simple, rather than bifurcated as in *Dissodactylus*; MXP3 with the inner distal margin of the merus obtusely angled rather than curved as in *Gemmothere*s, *Ostracotheres*, and *Tunicotheres*; carapace lacking upturned lateral margins and median mushroom-shaped tubercle as in *Xanthasia*. All of these other genera comprise shore rather than slope species, and all but *Ostracotheres* and *Xanthasia* are restricted to the Americas.

A seventh genus, *Epulothere*s, was added by Manning (1993), who incorrectly reported that it had a MXP3 with a three-segmented palp. This was corrected by Manning & Felder (1996) who reillustrated the palp, which has the usual three segments. *Nannotheres* Manning & Felder, 1996 does have a two-segmented palp. In it WL4 is the longest walking leg and the dactyli of the walking legs are similar and equal in length.

The obtuse projection on the dorsal surface of the dactylus of the WL (Fig. 1b) may prove to be a unique feature of *A. abyssicola*.

Only one other pinnotherid, *Alain crosnieri* Manning, 1998, is known from depths greater than 400 m. An associate of holothurians, it was taken in depths of 399–461 m off Indonesia.

We are pleased to have the opportunity to include this report in a volume dedicated to our late colleague Austin B. Williams, whose many studies on decapods have contributed much to our knowledge of the group.

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